

**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>11875PCT</b>	<div style="display: flex; justify-content: space-between;"> <div><b>FOR FURTHER ACTION</b></div> <div>See Form PCT/IPEA/416</div> </div>	
International application No. <b>PCT/AU2004/000376</b>	International filing date ( <i>day/month/year</i> ) <b>26 March 2004</b>	Priority date ( <i>day/month/year</i> ) <b>28 March 2003</b>
International Patent Classification (IPC) or national classification and IPC  <b>Int. Cl.<sup>7</sup> B23B 51/04 B27G 15/00 B27B 5/12, 33/18</b>		
Applicant  <b>KEIGHTLEY, Kym John</b>		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.	
2. This REPORT consists of a total of <b>4</b> sheets, including this cover sheet.	
3. This report is also accompanied by ANNEXES, comprising: <div style="margin-left: 20px;"> a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of <b>4</b> sheets, as follows: <div style="margin-left: 20px;"> <input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).   <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. </div> </div> <div style="margin-left: 20px;"> b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or table related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions). </div>	
4. This report contains indications relating to the following items: <div style="margin-left: 20px;"> <input checked="" type="checkbox"/> Box No. I      Basis of the report  <input type="checkbox"/> Box No. II      Priority  <input type="checkbox"/> Box No. III      Non-establishment of opinion with regard to novelty, inventive step and industrial applicability.  <input checked="" type="checkbox"/> Box No. IV      Lack of unity of invention  <input checked="" type="checkbox"/> Box No. V      Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement  <input type="checkbox"/> Box No. VI      Certain documents cited  <input type="checkbox"/> Box No. VII      Certain defects in the international application  <input type="checkbox"/> Box No. VIII      Certain observations on the international application </div>	

Date of submission of the demand <b>20 July 2004</b>	Date of completion of the report <b>21 February 2005</b>
Name and mailing address of the IPEA/AU <b>AUSTRALIAN PATENT OFFICE</b> <b>PO BOX 200, WODEN ACT 2606, AUSTRALIA</b> E-mail address: <a href="mailto:pct@ipaaustralia.gov.au">pct@ipaaustralia.gov.au</a> Facsimile No. (02) 6285 3929	Authorized Officer  <b>SARAVANAMUTHU PONNAMPALAM</b> Telephone No. (02) 6283 2070

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/AU2004/000376

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language which is the language of a translation furnished for the purposes of:

☐ international search (under Rules 12.3 and 23.1 (b))

☐ publication of the international application (under Rule 12.4)

☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☐ the international application as originally filed/furnished

☒ the description:

pages 1,4-7 as originally filed/furnished

pages\* 2,3 received by this Authority on 15 February 2005 with the letter of 14 February 2005

pages\* received by this Authority on with the letter of

☒ the claims:

pages as originally filed/furnished

pages\* as amended (together with any statement) under Article 19

pages\* 8, 9 received by this Authority on 15 February 2005 with the letter of 14 February 2005

pages\* received by this Authority on with the letter of

☒ the drawings:

pages 1-7 as originally filed/furnished

pages\* received by this Authority on with the letter of

pages\* received by this Authority on with the letter of

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages

☐ the claims, Nos.

☐ the drawings, sheets/figs

☐ the sequence listing (*specify*):

☐ any table(s) related to the sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages

☐ the claims, Nos.

☐ the drawings, sheets/figs

☐ the sequence listing (*specify*):

☐ any table(s) related to the sequence listing (*specify*):

\* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/AU2004/000376

Box No. IV Lack of unity of invention

1. ☐ In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is:

- ☐ complied with.
- ☒ not complied with for the following reasons:

The different invention are as follows:

Claims 1-11                      A hole saw boss having a threaded portion of two different diameter,

Claims 12 & 13                A hole saw boss having at least one drive pin configured to engage both said at least one notch on said base member and an existing aperture on at least one of said hole saws.

4. Consequently, this report has been established in respect of the following parts of the international application:

- ☒ all parts.
- ☐ the parts relating to claims Nos.

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/AU2004/000376

**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims 1-13	YES
	Claims	NO
Inventive step (IS)	Claims 1-13	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-13	YES
	Claims	NO

## 2. Citations and explanations (Rule 70.7)

### NOVELTY (N) and INVENTIVE STEP (IS)

A. The documents constituting the closest prior art are:

- (i) US 5624213 A
- (ii) US 5413437 A
- (iii) WO 2003024677 A

B. The subject matter of claims 1 & 12 differs from these prior art documents in that

- (a) the threaded member consists of two different diameter of threaded portions,
- (b) the drive pin is configured to engage both said one notch on said base member and existing aperture on at least one of said hole saws, respectively.

C. The distinguishing features of the invention

- (a) eliminates the need to replace the boss when a hole saw of different bore size needs to be used and it is achieved by including different sized threads on the one boss.
- (b) the hole saw is prevented from over tightening on the threaded member. respectively.

D. Therefore the application satisfies the criteria set forth in PCT Article 33(2-3), concerning novelty and inventive step of the independent claim 1 & 12.

E. The criteria concerning novelty and inventive step of claims 2-11 & 13 are satisfied because these claims are dependent on claim 1 & 12 respectively.

### INDUSTRIAL APPLICABILITY (IA)

The invention defined in claims 1-13 satisfies the criterion set forth in PCT Article 33(4).

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Box No. IV Lack of unity of invention

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- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is:

- ☐ complied with.
- ☒ not complied with for the following reasons:

The different invention are as follows:

Claims 1-11

A hole saw boss having a threaded portion of two different diameter,

Claims 12 & 13

A hole saw boss having at least one drive pin configured to engage both said at least one notch on said base member and an existing aperture on at least one of said hole saws.

4. Consequently, this report has been established in respect of the following parts of the international application:

- ☒ all parts.
- ☐ the parts relating to claims Nos.

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/AU2004/000376

**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims 1-13	YES
	Claims	NO
Inventive step (IS)	Claims 1-13	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-13	YES
	Claims	NO

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A. The documents constituting the closest prior art are:

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- (iii) WO 2003024677 A

B. The subject matter of claims 1 & 12 differs from these prior art documents in that

- (a) the threaded member consists of two different diameter of threaded portions,
- (b) the drive pin is configured to engage both said one notch on said base member and existing aperture on at least one of said hole saws, respectively.

C. The distinguishing features of the invention

- (a) eliminates the need to replace the boss when a hole saw of different bore size needs to be used and it is achieved by including different sized threads on the one boss.
- (b) the hole saw is prevented from over tightening on the threaded member. respectively.

D. Therefore the application satisfies the criteria set forth in PCT Article 33(2-3), concerning novelty and inventive step of the independent claim 1 & 12.

E. The criteria concerning novelty and inventive step of claims 2-11 & 13 are satisfied because these claims are dependent on claim 1 & 12 respectively.

### INDUSTRIAL APPLICABILITY (IA)

The invention defined in claims 1-13 satisfies the criterion set forth in PCT Article 33(4).

Insofar as the applicant is aware, there exists no hole saw boss including a threaded member adapted to accommodate two hole saws of the same or different diameter threaded bore.

#### SUMMARY OF THE INVENTION

- 5 Therefore, in one form of the invention there is proposed an improved hole saw boss including:  
a threaded member incorporating a first threaded portion adapted to engage a threaded bore of a first hole saw and a second threaded portion adapted to engage a threaded bore of a second hole saw, wherein the second threaded portion is of a stepped down diameter to accommodate  
10 a hole saw having a threaded bore diameter smaller than the first hole saw.

In preference said second hole saw cutting diameter is smaller than said first hole saw cutting diameter.

In preference said boss includes a base member to which the threaded member is connected.

- 15 In preference said first and second threaded portion diameters correspondingly engage with commonly available hole saw threaded bore diameters.

In preference at least one threaded portion is of a length capable of accommodating more than one hole saw of different cutting diameters.

- 20 In preference said base member and said threaded member include a central aperture adapted to allow a drill bit to fit there through.

In preference said boss includes a connection means which is configured to engage a mandrel.

In preference said second hole saw is chosen to fit snugly within an existing aperture of a work piece.

- 25 In preference said first hole saw is adapted to drill a hole larger than the existing hole into said work piece.

Preferably the cutting surface of said second hole saw extends longitudinally beyond the cutting surface of said first hole saw.



Preferably said cutting surface of said second hole saw contacts the planar face of said work piece before said cutting surface of said first hole saw.

In a further form of the invention there is proposed an improved hole saw boss including:

- 5 a threaded member adapted to accommodate at least two hole saws of different cutting diameters;  
a base member having at least one notch; and  
at least one drive pin, said drive pin configured to engage both said at least one notch on said base member and an existing aperture on at least one of said hole saws.
- 10 In preference in said at least one drive pin is magnetised to restrain said drive pin within said aperture on said hole saw.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate several implementations of the invention and, together with the  
15 description, serve to explain the advantages and principles of the invention. In the drawings,

- Figure 1 is an exploded perspective view of a hole saw assembly embodying the present invention and including a single threaded member;
- Figure 2 is a perspective view of the hole saw assembly of Figure 1 applied to a work piece;
- 20 Figure 3 is a perspective view of the double-diameter boss of the present invention including a mandrel connection means;
- Figure 4 is a side view of the hole saw boss of Figure 3;
- Figure 5 is a top view of the hole saw boss of Figure 3;

## CLAIMS

JC20 Rec'd PCT/PTO 28 SEP 2005

1. An improved hole saw boss including:  
a threaded member incorporating a first threaded portion adapted to engage a  
threaded bore of a first hole saw and a second threaded portion adapted to engage a  
threaded bore of a second hole saw, wherein the second threaded portion is of a  
stepped down diameter to accommodate a hole saw having a threaded bore diameter  
smaller than the first hole saw.
2. An improved hole saw boss as in claim 1 wherein said second hole saw cutting  
diameter is smaller than said first hole saw cutting diameter.
3. An improved hole saw boss as in claim 1 wherein said boss includes a base member  
to which the threaded member is connected.
4. An improved hole saw boss as in claim 1 wherein said first and second threaded  
portion diameters correspondingly engage with commonly available hole saw  
threaded bore diameters.
5. An improved hole saw boss as in claim 1 wherein at least one threaded portion is of a  
length capable of accommodating more than one hole saw of different cutting  
diameters.
6. An improved hole saw boss as in claim 1 wherein said base member and said  
threaded member include a central aperture adapted to allow a drill bit to fit there  
through.
7. An improved hole saw boss as in claim 1 wherein said boss includes a connection  
means which is configured to engage a mandrel.
8. An improved hole saw boss as in claim 1 wherein said second hole saw is chosen to  
fit snugly within an existing aperture of a work piece.
9. An improved hole saw boss as in claim 1 wherein said first hole saw is adapted to  
drill a hole larger than the existing hole into said work piece.
10. An improved hole saw boss as in claim 9 wherein the cutting surface of said second  
hole saw extends longitudinally beyond the cutting surface of said first hole saw.

11. An improved hole saw boss of claim 9 wherein said cutting surface of said second hole saw contacts the planar face of said work piece before said cutting surface of said first hole saw.
12. An improved hole saw boss including:
- 5 a threaded member adapted to accommodate at least two hole saws of different cutting diameters;
- a base member having at least one notch; and
- at least one drive pin, said drive pin configured to engage both said at least one notch on said base member and an existing aperture on at least one of said hole saws.
- 10 13. An improved hole saw boss of claim 12 wherein said at least one drive pin is magnetised to restrain said drive pin within said aperture on said hole saw.